

PO No	Supplier	Line Item No	Rel	Terms	Purchased Item	Description	For Part	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Serial No	Status	Receive Date	Price/Unit	Aging Days
P038640	TWM001-VU	1	1	Net 30	M6061T6T0.3125W.035	Aluminum Tube .3125 X .059W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	3.125			240	12/21/2017	240	S025047	S025047	Stock	12/19/2017	\$ 2.50 / pcs	0
		2			M6061T6T0.375W.035	6061-T6 Round Tube .375 X .035W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	48			48		48	S024959	S024959	Stock	12/19/2017	\$ 3.40 / ft	0
		3			M6061T6T0.375W.058	6061-T6 Round Tube .375 X .058W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	240			240		228	S024950	S024950	Stock	12/19/2017	\$ 2.15 / pcs	0
		4			M6061T6T0.500W.049	6061-T6 Round Tube .500 X .049W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	48			48		48	S024961	S024961	Stock	12/19/2017	\$ 2.91 / ft	0
		5			M6130NT0.500W.086	4130 Round Tube .500 X .083W : MATERIAL: AISI 4130N STEEL TUBING AS PER MLL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374 receive ft	60			60		60	S024962	S024962	Stock	12/19/2017	\$ 4.00 / ft	0
Total:											636							
											624							

Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada



Tel (613) 632-5200

# PURCHASE ORDER

PO038640

## Supplier:

TWM001-VU  
TW Metals  
PO Box 933014  
Atlanta, GA 31193-3014 USA  
Phone: 585 768 5600  
Fax: 585 768 5601

## Ship To:

1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

## Via:

Ground  
Net 30

## Ship-To Contact:

Lavoie, Chantal  
clavoie@dartaero.com

## Revision Date:

PO No: PO038640  
PO Date: 12/13/17  
Due Date: 12/21/17

## Revision:

## Purchase Order

## Special Comments:

E-MAILED  
DEC 13 2017

Line Item	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
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1	M6061T6T0.3125W.058	Aluminum Tube .3125 X .058W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	Firmed	12/21/17	240 pcs	0 pcs	240 pcs	\$2.50/pcs	\$600.00
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2	M6061T6T0.375W.035	6061-T6 Round Tube .375 X.035W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	Firmed	12/21/17	48 ft	0 ft	48 ft	\$3.40/ft	\$163.20
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3	M6061T6T0.375W.058	6061-T6 Round Tube .375 X.058W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	Firmed	12/21/17	240 pcs	0 pcs	240 pcs	\$2.15/pcs	\$516.00
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4	M6061T6T0.500W.049	6061-T6 Round Tube .500 X.049W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	Firmed	12/21/17	48 ft	0 ft	48 ft	\$2.91/ft	\$139.68
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Items									
Line Item	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
5	M4130NTO.500W.083	4130 Round Tube .500 X .083W : MATERIAL: AISI 4130N STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374 receive ft	Firmed	12/21/17	60 ft	0 ft	60 ft	\$4.00/ft	\$240.00
Grand Total: \$1,658.88									
Order Notes									
<p>Procurement Quality Clauses</p> <p>A005 right of entry</p> <p>A012 chemical and physical test report</p> <p>A016 personnel qualification</p> <p>A017 raw material identification (as applicable)</p> <p>A026 certification of material conformance</p> <p>A041 quality management system</p> <p>A042 dart notification by supplier</p> <p>A043 retention of quality documents</p> <p>A048 counterfeit parts avoidance, detection, mitigation and disposition program</p> <p>A049 supplier awareness</p> <p>Terms &amp; Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit <a href="http://www.dartaerospace.com">www.dartaerospace.com</a> for further explanation.</p>									

Plex 12/13/17 2:22 PM dart.lavoie.chantal



O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 60645909

FROM: CRAN

PAGE 1

CUST NUMBER: 1203820 NET WGT: 57.669 REQ.DATE: 12/21/17 CONFIRMED  
SOLD TO: SHIP TO:  
DART AEROSPACE LTD DART AEROSPACE LTD  
1270 ABERDEEN ST 1270 ABERDEEN ST  
HAWKESBURY ON HAWKESBURY ON  
CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 12/14/17  
TERMS: NET 30 DAYS VIA: COMMON CARRIER  
F.O.B.: SHIPPING POINT FREIGHT: PREPAID  
CUST ORD NO.: PO038640 RELEASE NO.:  
RECEIVING PHONE:

LINE	ITEM	DESCRIPTION	WIDTH	LENGTH
0001	41723	D6061-T6 5/16 OD X .058 WA		12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT
	240.000 FT	240.000 FT	240.000 FT	13.104

\*\* 1 TEST REPORTS REQUIRED \*\*

\*\* 1 CERTS REQUIRED \*\*

ECCN: EAR99 Export License: NLR Expiration Date: 0/00  
PO:49379694 HT:2806820 PC: 20 CUSTOMER QTY: 240.000 UOM  
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:474075

LINE	ITEM	DESCRIPTION	WIDTH	LENGTH
0002	41879	D6061-T6 3/8 OD X .035 WA		12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT
	48.000 FT	48.000 FT	48.000 FT	2.108

\*\* 1 TEST REPORTS REQUIRED \*\*

\*\* 1 CERTS REQUIRED \*\*

ECCN: EAR99 Export License: NLR Expiration Date: 0/00  
PO:49364047 HT:F002343910001 PC: 1 CUSTOMER QTY: 12.000 UOM  
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:222468  
PO:49378065 HT:F002527800001 PC: 3 CUSTOMER QTY: 48.000 UOM  
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:224433

LINE	ITEM	DESCRIPTION	WIDTH	LENGTH
0003	41952	D6061-T6 3/8 OD X .058 WA		12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT
	240.000 FT	240.000 FT	240.000 FT	16.272

\*\* 1 TEST REPORTS REQUIRED \*\*

\*\* 1 CERTS REQUIRED \*\*

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00  
PO:49376296 HT:F002504860001 PC: 20 CUSTOMER QTY: 240.000 UOM FT  
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:224194

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE  
PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL  
REVIEW.  
<http://www.twmetals.com/invoice-terms.html>



O'Neal High-Performance Metals Group



**Packing Slip**

ORDER NO.: 60645909 FROM: CRAN PAGE 2

CUST NUMBER: 1203820 NET WGT: 57.669 REQ.DATE: 12/21/17 CONFIRMED  
 SOLD TO: SHIP TO:  
 DART AEROSPACE LTD DART AEROSPACE LTD  
 1270 ABERDEEN ST 1270 ABERDEEN ST  
 HAWKESBURY ON HAWKESBURY ON  
 CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 12/14/17  
 TERMS: NET 30 DAYS VIA: COMMON CARRIER  
 F.O.B.: SHIPPING POINT FREIGHT: PREPAID  
 CUST ORD NO.: PO038640 RELEASE NO.:  
 RECEIVING PHONE:

LINE ITEM DESCRIPTION WIDTH LENGTH

0004 42252 D6061-T6 1/2 OD X .049 WA 12 FT ML

CLN# ORD QTY INVOICE QTY SHIPPED QTY WT  
 48.000 FT 48.000 FT 48.000 FT 3.917

\*\* 1 TEST REPORTS REQUIRED \*\*  
 \*\* 1 CERTS REQUIRED \*\*

ECCN: EAR99 Export License: NLR Expiration Date: 0/  
 PO:49377015 HT:F002524800001 PC: 4 CUSTOMER QTY: 48.000  
 MLT:UNITED STATES MFG:UNITED STATES SLB/CL:224304

0005 32821 SMLSCD 4130 6736 1/2 X .083 WA 17/24 FT

CLN# ORD QTY INVOICE QTY SHIPPED QTY WT  
 60.000 FT 60.250 FT 60.250 FT 22.268

\*\* 1 TEST REPORTS REQUIRED \*\*  
 \*\* 1 CERTS REQUIRED \*\*

ECCN: 9A991.d Export License: NLR Expiration Date: 0/  
 PO:49362520 HT:253636 PC: 3 CUSTOMER QTY: 60.250  
 MLT:GERMANY MFG:GERMANY SLB/CL:1632158

BROKERS KUEHNE AND NAGEL LTD

AREA	TYPE OF PKG	PKGS	GRS WEIGHT	WIDTH	LENGTH
B	CARTON	1.000	77.000		20.5000
B	CARTON	1.000			12.5000

**THANK YOU FOR THIS ORDER**

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE  
 PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL  
 REVIEW.  
<http://www.twmetals.com/invoice-terms.html>



0'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 60645909 FROM: CRAN PAGE 3

CUST NUMBER: 1203820 NET WGT: 57.669 REQ. DATE: 12/21/17 CONFIRMED

SOLD TO: DART AEROSPACE LTD 1270 ABERDEEN ST HAWKESBURY ON CANADA  
SHIP TO: DART AEROSPACE LTD 1270 ABERDEEN ST HAWKESBURY ON ONTARIO CANADA  
SHIP BY: 12/14/17 COMMON CARRIER PREPAID

SALESPERSON: DONNA SMALLEY NET 30 DAYS SHIPPING POINT  
TERMS: F.O.B.:  
CUST ORD NO.: P0038640  
RELEASE NO.:  
RECEIVING PHONE:  
WIDTH  
LENGTH

2.000 77.000

BY: CI RT 000-

UNLOAD TYPE: NONE SPECIFIED

DATE SHIPPED

DATE FILLED

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL REVIEW.  
<http://www.twmetals.com/invoice-terms.html>



O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 60645909 FROM: CRAN

PAGE 4

CUST NUMBER: 1203820 NET WGT: 57.669 REQ. DATE: 12/21/17 CONFIRMED

SOLD TO: SHIP TO:

DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY ON

DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY ON

CANADA CN K6A 1K7

ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY

SHIP BY: 12/14/17

TERMS: NET 30 DAYS

27 ENGLEHARD DRIVE

F.O.B.: SHIPPING POINT

MONROE TWP NJ 08831

CUST ORD NO.: PO038640

VIA: COMMON CARRIER

FREIGHT: PREPAID

RELEASE NO.:

RECEIVING PHONE:

"TW Metals MSDS data is available on our web site at [www.twmetals.com](http://www.twmetals.com). MSDS data can be found under the Technical Resources Tab, Product Statistics & Data and the TW Metals MSDS's heading. If you do not have web site access you may telephone 610-458-1300 and we will mail or fax a copy of our current MSDS data to your location."

# "CERTIFICATE OF CONFORMANCE"

"TW Metals certifies that the material supplied on this purchase order and contained in the heat/lot number referenced above has been manufactured, inspected, and tested in accordance with the material specification. These records are on file at TW Metals. Packaging material for shipments to Europe and China consists of manufactured wood products and complies with the European emergency measures for coniferous non-manufactured wood packing material"

Electronically Generated Certificate-Valid without signature Date: 12/14/17  
These commodities have been exported from the United States in accordance with the U.S. export control laws, export administration regulations. Diversion contrary to U.S. law prohibited.

THANK YOU FOR THIS ORDER

REVIEW

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL

<http://www.twmetals.com/invoice-terms.html>





## CERTIFIED TEST REPORT

CUSTOMER PURCHASE ORDER NO. M 49379694 LINE 001		CUST. ORD. NO. 474075		PRECISION TUBE P/N 24A031250580005																												
SOLD TO: TW METALS 175 TUBEMAY FOREST PARK, GA 30298 UNITED STATES		SHIP TO: TW METALS 175 TUBEMAY FOREST PARK, GA 30298 UNITED STATES																														
QUANTITY ORD. 3000 FT		DESCRIPTION		QTY. SHIPPED																												
METAL - 6061 ALUM		TEMPER - T6		3300 FT																												
SPEC - AMS 4082P		ASTM-B-210-12 AMS-WW-T-700/6C		11/29/17																												
LENGTH - 12 FT		LGTH TOL +.1250 IN -.0000 IN																														
SHAPE - ROUND		FINISH - STRAIGHT EXACT LENGTHS																														
OD .3125		ID .0030																														
WALL .0580		+ .0040 - .0040																														
TENSILE STRENGTH (P.S.I.)		YIELD STRENGTH (P.S.I.)		ELONGATION IN 2 INCHES (%)																												
46,159		41,594		14																												
47,629		43,126		17																												
SAMPLE # 1				ROCKWELL HARDNESS																												
				AVERAGE GRAIN SIZE (MM.)																												
DESTRUCTIVE TESTS																																
Comments: FAR BAA COMPLIES, DEARS BAA COMPLIES, FAR TAA COMPLIES																																
TEST REPORTS ACCEPTED BY MURRAY DEC 04 2017																																
NON-DESTRUCTIVE TESTS																																
EDDY CURRENT: PASS																																
CHEMICAL COMPOSITION																																
TRACEABILITY #: 2806820																																
RAW MATL VENDOR: PFC13725 - KAISER ALUMINUM INVESTMENTS																																
ALLOY: 6061 HEAT:																																
<table border="1"> <tr> <td>Si</td> <td>Fe</td> <td>Cu</td> <td>Mn</td> <td>Mg</td> <td>Cr</td> <td>Zn</td> <td>Ti</td> <td>Al</td> </tr> <tr> <td>0.40</td> <td>0.15</td> <td>0.15</td> <td>0.80</td> <td>0.04</td> <td>0.35</td> <td>0.25</td> <td>0.15</td> <td></td> </tr> <tr> <td colspan="9">OTHER ELEMENTS: 0.05 MAX EACH / 0.15 MAX TOTAL</td> </tr> </table>						Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al	0.40	0.15	0.15	0.80	0.04	0.35	0.25	0.15		OTHER ELEMENTS: 0.05 MAX EACH / 0.15 MAX TOTAL								
Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al																								
0.40	0.15	0.15	0.80	0.04	0.35	0.25	0.15																									
OTHER ELEMENTS: 0.05 MAX EACH / 0.15 MAX TOTAL																																

We hereby certify that the material has been manufactured and tested in accordance with the requirements of the applicable specifications and descriptions set forth on Precision Tube's sales acknowledgment. During the manufacturing, testing and inspection, the product did not come into direct contact with mercury or any of its compounds, nor with any mercury containing device employing a single boundary containment. Test results indicate that the material is compliant with the current revision of the RoHS Directive (2011/65/EU).

Melted and Manufactured in USA  
QMS Registered to ISO 9001: 2008

By: Jennifer James  
Quality & Technical Lead

11/29/17  
Page: 1 of 1



# KAISER ALUMINUM FABRICATED PRODUCTS

CERTIFIED TEST REPORT  
http://Online.KaiserAluminum.com

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

CUSTOMER PO NUMBER: M49364047-1		CUSTOMER PART NUMBER: 41879		PRODUCT DESCRIPTION: Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER: LINE ITEM:	001	SHIP DATE:	02/24/2017	KAISER LOT NUMBER:	6061
WEIGHT SHIPPED:	188.000 LB	QUANTITY:	355.000 PCS	B/L NUMBER:	224424
SHIP TO:		SOLD TO:			
TW METALS INC 27 ENGLEHARD DRIVE EXIT 8A OFF NJ TPK MONROE TWP, NJ 08831 USA		TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA			

## Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON%IACS	BEND
F00234391	0001	1	47.7	40.2	17.0	N/A	N/A	N/A

## Chemical Composition (wt%), Aluminum Remainder

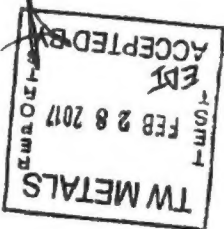
LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ba	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D76511	.59	.28	.23	.06	.98	.08	.07	.02	.00	.00	.00	.01	.02

## Applicable Requirements:

Description: OD: 0.3750"; Wall: 0.0350"; Round @  
AMS4082P AMS-WW-T-700/6C ASTM B210-12  
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.  
This product complies to FAR BAA, DEARS BAA, FAR TAA  
COMPLIES TO DIN EN 10204 JAN 2005  
No Weld Repair. Mercury Free.

## Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA  
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DEARS BAA  
(DEARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5  
TRADE AGREEMENTS).



# **KAISER ALUMINUM FABRICATED PRODUCTS**

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

## **CERTIFICATION**

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Hans Kattentidt, Quality Manager



**CERTIFIED TEST REPORT**  
<http://Online.KaiserAluminum.com>

Plant Serial: 00024251  
Kaiser Order Number: 222468  
Line Item: 001

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

CUSTOMER PO NUMBER:		M49378065-1		41879		PRODUCT DESCRIPTION:		Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER:		LINE ITEM:		SHIP DATE:		KAISER LOT NUMBER:		TEMPER:	
224433		001		10/23/2017		F00252780		T6	
WEIGHT SHIPPED:		QUANTITY:		B/L NUMBER:		DIAM/DAF/THKNS:		LENGTH:	
151,000 LB		285,000 PCS		227219				12,000 FT	
SHIP TO:						SOLD TO:			
TW METALS INC						TW METALS INC			
22 ENGLEHARD DRIVE						760 CONSTITUTION DRIVE			
EXIT 8A OFF NJ TPK						SUITE 204			
MONROE TWP, NJ 08831 USA						EXTON, PA 19341 USA			

### Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CONFIACS	BEND
F00252780	0001	1	49.8	42.8	17.5	N/A	N/A	N/A

### Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D20573	.59	.26	.22	.04	.97	.09	.04	.03	.00	.00	.00	.00	.00

### Applicable Requirements:

Description: 0.0375" Wall, 0.0350" Round @  
AMS4082P W AMS-WW-T-706/6C ASTM B210-12  
WE TAKE EXCEPTION TO PARA. 5.2.1, Per AMS4082P, WAS NOT OILED.  
This Product Complies to FAR BAA, DEARS BAA, FAR TAA  
COMPLIES TO DIN EN 10204 JAN 2005  
No Weld Repair. Mercury Free.

### Miscellaneous Notes

MANUFACTURED IN USA. MELTED IN USA  
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DEARS BAA  
(DEARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5  
TRADE AGREEMENTS).



**CERTIFIED TEST REPORT**  
<http://Online.KaiserAluminum.com>

**KAISER ALUMINUM**  
**FABRICATED PRODUCTS, LLC**  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

**CERTIFICATION**

Kaiser Aluminum Fabricated Products, LLC ("Kaiser") hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgment form. Any warranty is limited to that shown on Kaiser's general terms conditions of sale. Test reports are on file subject to examination.

Hans Kattentidt, Quality Manager

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

CUSTOMER PO NUMBER:		M49376296-1		CUSTOMER PART NUMBER:		41952		PRODUCT DESCRIPTION:		Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER:		LINE ITEM:		SHIP DATE:		KAISER LOT NUMBER:		ALLOY:		TEMPER:	
224194		001		09/23/2017		F00250486		6061		T6	
WEIGHT SHIPPED:		QUANTITY:		BL NUMBER:		DIA/DA/TH/KN:		WIDTH:		LENGTH:	
474,000 LB		585,000 PCS		226892						12,000 FT	
SHIP TO:											
TW-METALS INC 235 WEST TUBEWAY DRIVE CAROL STREAM, IL 60188 USA TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA											

**Actual Physical Properties**

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON%IACS	BEND
F00250486	0001	1	48.0	41.5	17.0	N/A	N/A	N/A

**Chemical Composition (wt%), Aluminum Remainder**

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D20419	.61	.27	.21	.04	.98	.09	.05	.03	.00	.00	.00	.01	.02

**Applicable Requirements:**

Description: OD: 0.3750", Wall: 0.0580", Round &  
 AMS4082P AMS-WW-T-100/6C ASTM B210-12  
 WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.  
 This Product Complies to FAR BAA, DEARS BAA, FAR TAA  
 COMPLIES TO DIN EN 10204 JAN 2005  
 No Weld Repair. Mercury Free.



**Miscellaneous Notes**

MANUFACTURED IN USA MELTED IN USA  
 MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT-SUPPLIES), DEARS BAA  
 (DEARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5  
 TRADE AGREEMENTS).

AK

Plant Serial: 00026215  
Kaiser Order Number: 224194  
Line Item: 001

Page 2 of 2



11/11

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms conditions of sale. Test reports are on file subject to examination.

Hans Kattenidt, Quality Manager

**CERTIFICATION**

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6673 W. WILLIS ROAD  
CHANDLER, AZ 85226

**KAISER**  
**ALUMINUM**  
**FABRICATED PRODUCTS**

*[Handwritten signature]*

**CERTIFIED TEST REPORT**  
<http://online.kaiseraluminum.com>



KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

CUSTOMER PO NUMBER:		CUSTOMER PART NUMBER:		PRODUCT DESCRIPTION:	
M49377015-1		42252		Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER:		SHIP DATE:		KAISER LOT NUMBER:	
224304		10/16/2017		F00252480	
WEIGHT SHIPPED:		BA NUMBER:		DIA/DAF/THKNS:	
584.000 LB		227143		6061	
QUANTITY:		SOLD TO:		LENGTH:	
598.000 PCS		TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA		12.000 FT	

Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CONFIACS	BEND
F00252480	0001	1	48.8	40.4	21.5	N/A	N/A	N/A
F00252480	0002	1	47.2	39.3	20.0	N/A	N/A	N/A

Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Al	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D20571	.57	.26	.21	.04	.97	.09	.04	.03	.00	.00	.00	.01	.02
D20419	.61	.27	.21	.04	.98	.09	.05	.03	.00	.00	.00	.01	.02

Applicable Requirements:

Description: OD: 0.5000", Wall: 0.0490", Round @  
AMS4082P AMS-MW-T-700/6C ASTM B210-12 MW-T-700/6F  
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.  
This Product Complies to FAR BAA, DEARS BAA, FAR TAA  
COMPLIES TO DIN EN 10204 JAN 2005  
No Weld Repair. Mercury Free.



Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA  
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT-SUPPLIES), DEARS BAA  
(DEARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5  
TRADE AGREEMENTS).





CERTIFIED TEST REPORT  
<http://Online.KaiserAluminum.com>

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6673 W. WILLIS ROAD  
CHANDLER, AZ 85226

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms conditions of sale. Test reports are on file subject to examination.

Hans Kattentidt, Quality Manager



Benteler SteelTube GmbH  
Postfach 13 40  
33043 Padertown  
Deutschland  
Tel.: +49.5254.81-0 Fax: +49.5254.13866

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1**  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1  
EN 10204:2005-01

Benteler SteelTube GmbH - Postfach 1340 - 33043 Padertown - Deutschland

TW Metals  
The Aboretum, Suite 204  
760 Constitution Drive  
EXTON PA 19341  
USA

Dokument-Nr.: 41-991327/001/P

Document No.:  
No. du document:

Kunden-Bestell-Nr.: 46004784TW M48962520  
Purchase Order No.:  
No. de commande du client:

Benteler Auftrags-Nr.: 1632158  
Benteler Order No.:  
No. de commande Benteler:

Versandanzzeigen-Nr.: 4185829  
Dispatch Note No.:  
No. d'avis d'expédition:

Produkt: NAHTLOSE STAHLROHRE  
Product: SEAMLESS STEEL TUBES  
Produit: TUBES D'ACIER SANS SOUDURE

Prüf-Nr.:  
Inspection No.:  
No. du certificat:

Hersteller: Warmrohrwerk/Zieherei  
Manufacturer: IDIN EN ISO 9001, ISO/TS-16949 CERTIFIED BY TÜV NORD CERT  
Producteur: PED 2014/68/EU CERTIFIED BY TÜV NORD SYSTEMS

Herstellerezeichen:  
Manufacturer's brand:  
Marque du producteur:

Stempel des Abnahmebeauftragten: W/A  
Stamp of the inspection representative:  
Poinçon du contrôleur:

Stahlschmelzungsverfahren: ELEKTROSTAHL  
Steelmaking process: ELECTRIC FURNACE  
Procédé d'élaboration de l'acier: FOUR ELECTRIQUE

Lieferbedingungen: AMS-T-6736B-08 Type 1, ASTM-A 519-2006, MIL-T-6736B Type 1, AMS6360 Rev M, AMS 2301K

Terms of delivery:

Conditions de livraison:

Maße - Toleranzen: straightness acc. to customer request, AMS 2253E-83, Aircraft Type, Seamless, Cold Finished

Dimensions-tolerances:

GRADE 4130

Stahlsorte:  
Steel grade:  
Nuance d'acier:

Lieferzustand:

Condition N

Delivery condition:  
État de livraison:

Produktkennzeichnung:

FSD: BENTELER AMS6360M-AMS-T-6736 B 1-MIL-T-6736 B 1-AMS 2301K 4130 Condition N HEAT-NO.  
CD AO S DIMENSIONS WA GERMANY

Produkt marking:

Marquage du produit:

AEZ = Ätzmarkenzeichnung, Etching ink marking, Gravure à l'encre, PK = Farbmarkenzeichnung, color marking, marquage par pictures, FS = Farbschablonierung, paint stencilling, marquage par peinture, FSD = Farbstrahldrucker, Color jet printer, Impression à jet d'encre de couleur, LK = Lasermarkenzeichnung, Laser marking, Marquage laser, PKC = Etikettenmarkenzeichnung, tag marking, marquage sur étiquette, PS = Prägestempel, die stamp, marquage par poinçonnage, TS = Transstrahlenmarkenzeichnung, ink jet spray marking, impression à jet d'encre.



**BENTELER**  
Steel/Tube

Blatt: 1 / 4  
Page:  
Page:

Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: +49.5254.81-0 Fax: +49.5254.13666

**BENTELER**  
Steel/Tube

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1**  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.: 41-991327/001/P  
Document No.:  
No. du document:  
Prüf-Nr.:  
Inspection No.:  
No. du certificat:  
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Pos.	Stück	Maße	Dimensions	Gesamtlänge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielfachlängen
Item	Number	Dimensions		Length total	Weight	Heat No.	Test pressure	Tube number group	Multiple lengths
Poste	Nombre	Dimensions		Longueur totale	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs multiples
0008	125	0.500" O.D. * 0.083" WT 20 ET - 24 ET		2500,56 feet	926 lbs	253636			

**Schmelzenanalyse [%] / Heat analysis [%] / Analyse sur coulée [%]**

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de coulée									
0008	253636	0,320	0,270	0,57	0,008	0,001	0,88	0,17	0,09	0,14

**Produktanalyse [%] / Product analysis [%] / Analyse sur produit [%]**

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de coulée									
0008	253636	0,310	0,280	0,55	0,012	0,002	0,88	0,17	0,09	0,15

**Prüfergebnisse / Test results / Résultats des essais**

Die Rohre wurden zerstörungsfrei geprüft:

ET-test: acc. to ASTM-A 450; ET - Test method: acc. to ASTM-E 309; for Imperfections;

PASSED

The tubes are non destructive tested:

ET-test: ET with rotating pancake coils; according to EN 10246-3; imperfections;

PASSED

Les tubes ont passé un essai non destructif:

Notch depth: 0,30 mm; notch width < = notch depth; notch length min. 2 x transducer width (max. 50 mm)

Augensichtkontrolle:

PASSED

Materialverwechslungsprüfung:

PASSED

Maßkontrolle:

PASSED

Visual inspection:

Material conformity test:

Dimensions examination:

PASSED

Examen visuel:

Vérification de la nuance:

Vérification des dimensions:

**Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques**

Die Probenahme erfolgte an Vielfachlängen.

The sampling was carried out on multiple lengths.

L'échantillonnage était réalisé aux longueurs multiples.



AKS

Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: +49.5254.81-0 Fax: +49.5254.13666

**BENTELER**  
Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.:  
Document No.:  
No. du document:

41-991327/001/P

Prüf-Nr.:  
Inspection No.:  
No. du certificat:

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Zugversuch längs bei RT, Vollprobe / Tensile test longitudinal at RT, Full section test specimen / Essai de traction longitudinale à TA, Eproyvette a section complete

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	Streckgrenze	Zugfestigkeit	Dehnung
Item	Specimen No.	Heat No.	Specimen dimensions	Yield strength	Tensile strength	Elongation
Poste	No. de l'éprouv.	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement
Anforderungen						
Requirements			mm	Rp 0,2 %	Rm	A2"
Exigences				KSI	KSI	%
				MIN 75	MIN 95	MIN 12,00
0008	000001	253636	12,74 X	2,13	103	125
0008	000002	253636	12,74 X	2,13	101	124
0008	000003	253636	12,74 X	2,13	101	125
						18,00

Randentkohlung / Surface decarburization / Décarburation superficielle

Pos. / Item / Poste: 0008  
acc. to AMS-6360, partial decarburization outside max. 0,014 in, partial decarburization inside max. 0,014 in, partial decarburization outside and inside max. 0,018 in, partial decarburization outside and inside max. 0,457 mm, without total decarburization; partial decarb. out. max.: 0,356 mm; partial decarb. ins. max.: 0,356 mm

Vermerk / Remark / Remarque

Pos. / Item / Poste: 0008

Certificate remarks: The steel grade corresponds to MIL-T-6736B, AMS 6360M, material free from mercury contamination, FAR BAA: 52.225-1 CANNOT COMPLY, DFARS BAA: 252.225-7001 CAN COMPLY, FAR TAA: 52.225-5 CAN COMPLY, No weld repair has been carried out, Country of origin of the material and heat: Germany, Aircraft quality steel acc. to AMS 2301K; see appendix page 1 of 1.

Pos. / Item / Poste: 0008

Macroscopic examination: acc. to ASTM-E 381

Pos. / Item / Poste: 0008

Magnetic particle Inspec.: acc. to AMS 2301K/ASTM-E 1444, on prematerial

Pos. / Item / Poste: 0008

Grain size: acc. to ASTM-E 112; Grain size and finer: 5; Grain size: Longitudinal structure micrography, On prematerial

Verkäufer(in) / Sales Personnel / Personne chargée : Mr. Schwarz, Tel.: 05254 81-204311, Fax: 204391



Handwritten mark/signature.

Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: +49.5254.81-0 Fax: +49.5254.13666

ABNAHMEPRÜFZEUGNIS EN 10204-3.1  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.:  
Document No.:  
No. du document:

41-991327/001/P

Prüf-Nr.:  
Inspection No.:  
No. du certificat:

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Page:

**BENTELER**  
Steel/Tube

Paderborn Schloß Neuhaus, 07.03.2017, TEL.: 05254.81-201768 FAX: 05254.81-201752

Abnahmebeauftragter  
Inspection representative  
Contrôleur

I. A. THOMAS GOLLAN / Tat

Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig.  
We certify that the supplied products comply with the order specification. This document was prepared by means of electronic data processing and is valid without signature.  
Nous attestons que les produits livrés sont conformes aux stipulations de la commande. Ce document a été établi par traitement électronique de l'information et est valide sans signature.



4/5

Benteler SteelTube GmbH  
Residenzstraße 1  
33104 Paderborn  
Germany  
Tel.: 49.5254.81-0 Fax: 49.5254.13866

**BENTELER**  
Steel/Tube

Abnahmeprüfzeugnis EN 10204-3.1 / Anhang  
Inspection Certificate EN 10204.3.1 / appendix  
Certificat de réception EN 10204-3.1 / appendice

Dokument-Nr.  
Document No.:  
No. de document:

41-991327/001/P

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Page: 1 of 1  
Page: de

Halbzeuguntersuchung: Stahlsorte 4130 / Semi finished product examination: grade 4130 / Produit semi-fini: nuance 4130

Schmelzen-Nr. Heat No. Coulée No.	Position Item Poste	Korngröße Grain size Grossueur de grain (ASTM-E 112)		Härtbarkeit (min. Anforderungen) Hardenability (min. requirements) Trempeabilité (exigence min.) (ASTM-A 266)		Magnetpulverprüfung Magnetic particle inspection Essai à la poudre magnétique (AMS 2301 K/ASTM-1444)		Makroätzung Macrostructure test Essai de macrostructure (ASTM-E 381)		
		min. 5		J(5/16") min. 35 HRC	J(8/16") min. 28 HRC	F max. 0,34	S max. 0,25	max. S 2	max. R 1	max. C 2
253636	008	9		44	34	0,020	0,015	S 2	R 1	C 2
Decarburization Depth		Outside 0,000 mm		Inside 0,050 mm						



Der Stahl ist frei von Quecksilberverunreinigungen. / The steel is free of mercury contamination. / L'acier est libre des contaminations de mercure.

Paderborn Schloß Neuhaus, 07.03.2017  
Tel.: (0)5254.81-201760 Fax: (0)5254.81-201752

Abnahmebeauftragter  
Inspection representative  
Contrôleur

Thomas Gollan

AG

# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M4130A1/0.500W.083 DATE: DEC 19 2017

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 60"  
 QUANTITY INSPECTED: 60"  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: .083W  
 THICKNESS RECEIVED: .083W  
 SHEET SIZE ORDERED: N/A  
 SHEET SIZE RECEIVED: N/A

PO BATCH NO.: 038640/5084902

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	<input checked="" type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/>	
CORROSION	<input checked="" type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/>	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/>	
CORRECT THICKNESS	<input checked="" type="checkbox"/>	
PHOTO REQUIRED	<input checked="" type="checkbox"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/>	
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/>	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/>	
DOES THIS MATERIAL REQUIRE	<input checked="" type="checkbox"/>	
ENGINEERING SIGN OFF	<input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN	<input checked="" type="checkbox"/>	
EXTRUSION REPORT	<input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK  
 RECORD RESULTS BELOW

TYPE OF MATERIAL	SIZE OF TEST SAMPLE	HARDNESS DUROMETER READING
HRC	HRB	DUR A
		DUR D
		WEBSTER

Testers located in the Quality Office

QC 18 INSPECTION

ENGINEERING SIGNOFF (if required)

INSPECTED BY: [Signature]

SIGNED OFF BY: \_\_\_\_\_

DATE: DEC 19 2017

DATE: \_\_\_\_\_

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

FORMS: Quality Assurance approved QA MRF Material Receipt Inspection Form revD



# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 4130N SEAMLESS STEEL TUBING  
SPECIFICATION: MIL-T-8738 OR AMS 6374 6360, 6361, 6362, 6373, 6374  
PART NUMBER: M4130N TO DDD W TTT WHERE: "D.DDD" = OUTER DIAMETER (IN INCHES)  
AND "TTT" = WALL THICKNESS (IN INCHES)  
DIA. WALL

EG. 3/4" TUBING WITH .035" WALL = M4130NT0.750W.035

RELEASE  
2012-04-16

B	REFORMAT DWG TO ACCOMMODATE ADDITIONAL TUBE DIAMETERS AND WALL THICKNESS				RP	12 04 02
A	NEW ISSUE				JB	01 05 16
REV	DESCRIPTION				BY	DATE
DESIGN	JB	DART AEROSPACE LTD				
DRAWN	RP	HAWKESBURY, ONTARIO, CANADA				
CHECKED	AP	DRAWING NO.				REV B
MFG APPR.		M4130N-T				SHEET 1 OF 1
APPROVED		TITLE				SCALE
DE APPR.		STEEL TUBING				NTS
DATE	12.04.02					

THIS DRAWING IS THE PROPERTY OF DART AEROSPACE LTD. IT IS TO BE USED FOR THE MANUFACTURE OF THE PARTS SPECIFIED HEREON ONLY. IT IS NOT TO BE REPRODUCED OR COPIED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD.

# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6616to500w.049 DATE: DEC 19 2017

PO BATCH NO.: 038640/5024961

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 48"  
 QUANTITY INSPECTED: 48"  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: .049w  
 THICKNESS RECEIVED: .049w  
 SHEET SIZE ORDERED: N/A  
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	<input checked="" type="checkbox"/> Y	
CORRECT FINISH	<input checked="" type="checkbox"/> Y	
CORROSION	<input checked="" type="checkbox"/> Y	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/> Y	
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y	
PHOTO REQUIRED	<input checked="" type="checkbox"/> Y	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y	
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y	
DOES THIS MATERIAL REQUIRE	<input checked="" type="checkbox"/> Y	
ENGINEERING SIGN OFF	<input checked="" type="checkbox"/> Y	
DOES THIS REQUIRE AN EXTRUSION REPORT	<input checked="" type="checkbox"/> Y	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK.  
 RECORD RESULTS BELOW

TYPE OF MATERIAL	SIZE OF TEST SAMPLE	HARDNESS, DUROMETER READING
HRC	HRB	DUR A
DUR D	WEBSTER	

Testers located in the Quality Office

QC 18 INSPECTION

ENGINEERING SIGNOFF (if required)

INSPECTED BY: [Signature]

DATE: DEC 19 2017

SIGNED OFF BY: \_\_\_\_\_

DATE: \_\_\_\_\_

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

FORMS: Quality Assurance approved QA MRF Material Receipt Inspection Form revD



PURCHASE MATERIAL: 6061-T6/62/70510/70511 SEAMLESS TUBING

SPECIFICATION:

WH-T-7008

OR QQ-A-200/8 OR QQ-A-225/8

OR AMS 4080 OR AMS 4082 OR AMS 4083

OR ASTM B210 OR ASTM B241

PART NUMBER:

M6061T6T D.D.D.D. W.T.T.T.

OD WALL



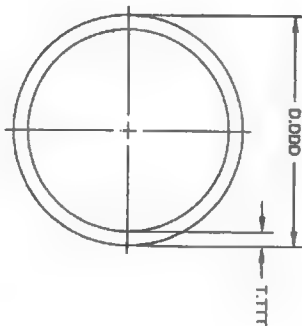
WHERE: D.D.D.D. = OD IN INCHES

T.T.T.T. = WALL THICKNESS

EG. 3/8" OD X 0.059 WALL = M6061T6T0.375W0.059

MATERIAL TOLERANCE:

PER ANSI H35.2



RELEASED  
2013-07-02  
JMP

C	COMPLETE REFORMAT, ADDED 70510 & 70511.	AMS	13.06.12
B	ADDED AMS 4083, ASTM B210 & ASTM B241	CP	04.01.23
A	ADD QQ-A-200/8 & QQ-A-225/8	DS	01.08.21
REV.	NEW ISSUE	BY	DATE
DESIGN	AJS	DESCRIPTION	
DRAWN	AJS	DART AEROSPACE LTD	
CHECKED	W	DRAWING NO.	
MFG. APPR.	W	M6061T6T	
APPROVED	W	TITLE	
DE APPR	W	6061-T6 TUBING	
DATE	13.06.12	COMPANY: DART AEROSPACE LTD	
		SHEET 1 OF 1	
		SCALE	
		NTS	

# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061H670.375W.058 DATE: DEC 11

QUANTITY RECEIVED: Yes MATERIAL CERT REC'D: Yes

QUANTITY INSPECTED: 228"

QUANTITY REJECTED: 12"

THICKNESS ORDERED: 0.375W THICKNESS RECEIVED: 0.38W

SHEET SIZE ORDERED: N/A SHEET SIZE RECEIVED: N/A

PO BATCH NO: 038640/5024960

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	<input checked="" type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/>	
CORROSION	<input checked="" type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/>	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/>	
CORRECT THICKNESS	<input checked="" type="checkbox"/>	
PHOTO REQUIRED	<input checked="" type="checkbox"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/>	
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/>	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/>	
DOES THIS MATERIAL REQUIRE	<input checked="" type="checkbox"/>	
ENGINEERING SIGN OFF	<input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN	<input checked="" type="checkbox"/>	
EXTRUSION REPORT	<input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK.  
RECORD RESULTS BELOW

TYPE OF MATERIAL	SIZE OF TEST SAMPLE	HARDNESS / DUROMETER READING
HRC	HRB	DUR A
DUR D	WEESTER	

Testers located in the Quality Office

QC 18 INSPECTION

ENGINEERING SIGNOFF (if required)

INSPECTED BY: [Signature]

SIGNED OFF BY:

DATE: DEC 19 2017

DATE:

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

FORMS Quality Assurance Approved QAMRIF Material Receipt Inspection Form revD

PURCHASE MATERIAL: 6061-T6/62/76510/76511 SEAMLESS TUBING

SPECIFICATION:

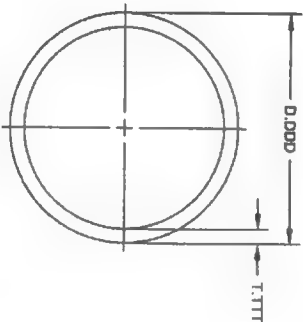
WWT-17008  
OR QQ-A-200/8 OR QQ-A-225/8  
OR AMS 4080 OR AMS 4082 DR AMS 4083  
OR ASTM B210 OR ASTM B241

PART NUMBER:

M6061T6T D.DDD/WT.TTT  
OD | WALL

WHERE "D.DDD" = OD IN INCHES  
"T.TTT" = WALL THICKNESS

MATERIAL TOLERANCE: EG. 3/8" OD X 0.038 WALL = M6061T6T0.375W0.038  
PER ANSI H36.2



RELEASED  
2013-07-02

C	COMPLETE REFORMAT, ADDED T6510 & T6511, ADDED AMS 4083, ASTM B210 & ASTM B241	AMS	13.06.12
B	ADD QQ-A-200/8 & QQ-A-225/8	CP	04.01.23
A	NEW ISSUE	DS	01.08.21
REV.	DESCRIPTION	BY	DATE
DESIGN	DESIGN	DATE	
DRAWN	DATE		
CHECKED	DATE		
MFG. APPR.	DATE		
APPROVED	DATE		
DE APPR.	DATE		
DATE	13.06.12		

DART AEROSPACE LTD  
HAMPSHIRE, ONTARIO, CANADA

REV. C  
SHEET 1 OF 1  
SCALE  
NTS

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# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: m60616 to 3125w058 DATE: DEC 19 2017  
 PO / BATCH NO.: 038640/5025047

MATERIAL CERT REC'D: Yes QUANTITY RECEIVED: 240"  
 QUANTITY INSPECTED: 240" QUANTITY REJECTED: 0  
 THICKNESS ORDERED: .058w THICKNESS RECEIVED: .058w  
 SHEET SIZE ORDERED: N/A SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	<input checked="" type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/>	
CORROSION	<input checked="" type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/>	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/>	
CORRECT THICKNESS	<input checked="" type="checkbox"/>	
PHOTO REQUIRED	<input checked="" type="checkbox"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/>	
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/>	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/>	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	<input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	<input checked="" type="checkbox"/>	

Am5 4082  
 Hsk# 2806820

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK.				
RECORD RESULTS BELOW				
HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL				
SIZE OF TEST SAMPLE				
HARDNESS / DUREMETER READING				

Testers located in the Quality Office

**QC 18 INSPECTION** ENGINEERING SIGNOFF (if required)

INSPECTED BY: [Signature] DATE: DEC 19 2017  
 SIGNED OFF BY: \_\_\_\_\_ DATE: \_\_\_\_\_

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

PURCHASE MATERIAL: 6061-T6/T62/T6310/T6311 SEAMLESS TUBING

SPECIFICATION:

WW-T-7008  
OR QQ-A-200/8 OR QQ-A-225/8  
OR AMS 4080 OR AMS 4082 OR AMS 4083  
OR ASTM B210 OR ASTM B241

PART NUMBER:

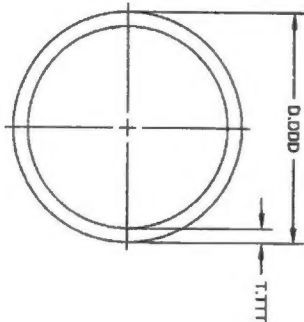
M6061T6T D.DDD/W.T.TTT  
OD | WALL

WHERE "D.DDD" = OD IN INCHES  
"T.TTT" = WALL THICKNESS

EG. 3/8" OD X 0.058 WALL = M6061T6T0.375W0.058

MATERIAL TOLERANCE:

PER ANSI H35.2



C	COMPLETE PERFORMANCE, ADDED T6310 & T6311.	AMS	13.06.12
B	ADDED AMS 4083, ASTM B210 & ASTM B241	CP	04.01.23
A	ADDED MATERIAL TOLERANCE	DS	01.06.21
A	NEW ISSUE	BY	DATE
DESIGN	AMS	DESCRIPTION	
DRAWN	AJS	DART AEROSPACE LTD	
CHECKED	W	DRAWING NO.	
MFG. APPR.	W	M6061T6T	
APPROVED	W	TITLE	
DE APPR.	W	6061-T6 TUBING	
DATE	13.06.12	REV. C	

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RELEASED  
2013-07-02  
JMP



# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M606 H6 to 375 W0.35

DATE: DEC 19 2017

MATERIAL CERT REC'D: Yes

QUANTITY RECEIVED: 48"

QUANTITY INSPECTED: 48"

QUANTITY REJECTED: 0

THICKNESS ORDERED: .035

THICKNESS RECEIVED: .035

SHEET SIZE ORDERED: N/A

SHEET SIZE RECEIVED: N/A

PO / BATCH NO.: 038640/5024959

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	<input checked="" type="checkbox"/> Y	
CORRECT FINISH	<input checked="" type="checkbox"/> Y	
CORROSION	<input checked="" type="checkbox"/> Y	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/> Y	
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y	
PHOTO REQUIRED	<input checked="" type="checkbox"/> Y	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y	
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	<input checked="" type="checkbox"/> Y	
DOES THIS REQUIRE AN EXTRUSION REPORT	<input checked="" type="checkbox"/> Y	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK.	RECORD RESULTS BELOW
TYPE OF MATERIAL	HRC
SIZE OF TEST SAMPLE	HRB
HARDNESS / DUREMETER READING	DUR A
	DUR D
	WEBSTER

Testers located in the Quality Office

QC 18 INSPECTION

INSPECTED BY: [Signature]

SIGNED OFF BY: \_\_\_\_\_

DATE: DEC 19 2017

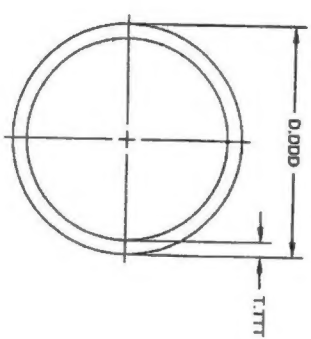
DATE: \_\_\_\_\_

ENGINEERING SIGNOFF (if required)

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

H:\FORMS\Quality Assurance\approved QAMRIF Material Receipt Inspection Form rev D

PURCHASE MATERIAL: 9081-T8/T82/T6510/T6511 SEAMLESS TUBING  
 SPECIFICATION: WW-T-7006  
 OR QQ-A-2008 OR QQ-A-2258  
 OR AMS 4080 OR AMS 4082 OR AMS 4083  
 OR ASTM B210 OR ASTM B241  
 PART NUMBER: M8081T6T D.DDD/W.T.TTT  
 WHERE "D.DDD" = OD IN INCHES  
 "T.TTT" = WALL THICKNESS  
 MATERIAL TOLERANCE: EG. 3/8" OD X 0.036 WALL = M8081T6T0.375W0.036  
 PER ANSI H35.2



RELEASED  
 2013-07-02  
 M.D.

DESIGN	AJS	COMPLETE REFORMAT, ADDED T6510 & T6511.	AJS	13.06.12
DRAWN	W	ADDED AMS 4083, ASTM B210 & ASTM B241	CP	04.01.23
CHECKED	W	ADDED MATERIAL TOLERANCE	DS	01.06.21
MFG. APPR.	W	ADD QQ-A-2008 & QQ-A-2258	BY	DATE
APPROVED	W	NEW ISSUE		
DE APPR.	W			
DATE	13.06.12			
DART AEROSPACE LTD HAMMERSBURY, ONTARIO, CANADA DRAWING NO. M8081T6T TITLE 6081-T6 TUBING REV. C SHEET 1 OF 1 SCALE NTS				

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